1. **What should Alice transmit to Bob assuming we are restricted to public key cryptosystems? Use the notation above.**

Alice will transmit EK(Pu(B),M1).

1. **When large messages must be encrypted, symmetric key cryptography is usually preferred to public key cryptography. Explain why.**

symmetric key cryptography is usually preferred because it is faster and requires less computational power (makes it more suitable for large data encryption).

1. **What should Alice transmit to Bob, to enable Bob to verify that it was indeed Alice who sent the message. Use the notation above. Do not worry about computational efficiency concerns.**

O Bob know the message is from allice, she can digitally sign it with her private key Pr(A). transmitting M1,EK(Pr(A),M1)

1. **If computational efficiency is a concern, what should Alice transmit to Bob to enable him to verify it was Alice who sent the message? Use public key cryptography along with other mechanisms as appropriate**